Pearson Edexcel

Examiners' Report
Principal Examiner Feedback

Summer 2025

Pearson Edexcel International GCSE
In Mathematics A (4WM1) Paper 1FR

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IGCSE Mathematics 4WM1 1FR Principal Examiners Report

Candidates who were well prepared for this paper were able to make a good attempt at all questions. It was encouraging to see many candidates clearly showing their working. Using everyday mathematics and finding percentages were some topics that some candidates found challenging.

On the whole, working was shown and was easy to follow through. There were some instances where candidates failed to read the question properly. For example, in Q11, some candidates did not interpret the question correctly; they did not write the numbers to one significant figure.

A striking weakness in candidates was solving problems with number work, Venn diagrams, applying Pythagoras theorem and working out problems involving fractions and percentages. On the whole, problem solving questions and questions assessing mathematical reasoning were not tackled well, this was particularly apparent in questions 8b, 13 and 14.

Comments on individual questions

Question 1

Candidates were presented with a table showing five 6 digit numbers. Almost all were able to (a) select the greatest, (b) write 314 161 to the nearest hundred, (c) give the place value of the 4 in 294 207 and (e) write the number 23 871 in words. Some candidates found part (c) challenging as a common incorrect answer was 4 thousandth, confusing thousandth with thousand.

Question 2

Parts (a) and (b) were answered well by the majority of candidates. In part (c), some candidates wrote down 1 or 2 odd numbers not clearly understanding the question.

Question 3

All parts of the question were answered well. In part (b), the common incorrect answer was to tick the acute box. Similarly, in part (c), the common incorrect answer was to tick the hexagon box.

Question 4

Parts (a), (b), (c) and (d) were answered well by the majority of candidates. The final part of the question was a problem solving one, where 8 of the 32 students in a class studied French. The candidates needed to work out the number of students who did not study French by subtracting 8 from 32 to find 24. Some students left their final answer as $\frac{24}{32}$ gaining the first mark. These candidates did not realise that they had to cancel the fraction down to find $\frac{3}{4}$.The candidates are encouraged to read the question carefully.

Question 5

In parts (a) and (b), most candidates were able to write the correct coordinates, however, a common error was to write the coordinates the wrong way around.

Part (c) was generally answered well. Some candidates plotted the coordinates (−2, −4) the wrong way around.

Question 6

Part (a) was answered well but a common incorrect answer was e^5

Part (b) provided most candidates the opportunity to gain 2 marks for $7p - 6k$ or 1 mark for either one of these, or for $7p + 6k$, or for a correct expression incorrectly simplified, for example to $13pk$ or pk. $7p + 10y$ was seen, where the terms in k had been added instead of subtracted.

Part (c) involved solving $3d = 24$ which gave an opportunity to gain a mark, and this was answered well by the majority of the candidates.

Part (d), candidates were asked to solve the simple equation $4x + 9 = 32$. A good number set out their working algebraically, while others used inverse processes numerically , ie $(32 - 9) \div 4$. While this method of working led to many correct answers, more often the $\div 4$ was shown as $- 4$ and candidates were unable to gain any marks.

Part (e) was well answered. Many candidates could multiply 6 by 9 and multiply 2 by 15 and obtain 54 and 30 respectively which gained the first mark. A common error was to add 54 and 30 and write for example 84. Some candidates did not recognise implicit multiplication and calculated $69 - 215$. Candidates can use a calculator to subtract their numbers. Candidates should be reminded to show the expression with values substituted, as sign errors are often made in subsequent working.

Question 7

It was encouraging to see may candidates using methodical steps in their solutions. Workings were generally well-presented and easy to follow, and most students gained full marks for an answer of 0.6(0). Some candidates didn't gain full marks, the following errors were seen, failing to multiply 1.60 by 4 or 2.15 by 2, arithmetic errors when adding the cost of the bars of chocolates and the bottles of water and a misinterpretation of the information in the question and working with one bar of chocolate and one bottle of water instead of 3 and 2 respectively. This latter approach could gain one mark for a value of 6.6(0). Once again candidates are encouraged read the question carefully and use a calculator.

Question 8

Part (a) was poorly answered as the candidates could not give the correct reason: vertically opposite angles are equal.

Part (b) was a challenging question for many candidates as they did not understand that angles in a quadrilateral add up to 360°. Candidates who worked out 360° – (90° + 163° +47°) and found 60° did not proceed any further. Similarly, candidates who worked out 180 – 110 to find 70 did not proceed any further and stated the correct reason gained 2 marks. Many students could not link the two parts of the question together.

Question 9

Part (a) Two-way tables are well recognised by candidates and a majority gained all 3 marks for correctly finding the 6 missing values, 2 marks for 4 or 5 values or 1 mark for 2 or 3 values.

Part (b), the question asked for the probability that this student is in Year 12 and studies French from 120 students chosen at random was well answered by many candidates.

Part (c) was challenging for some candidtaes as they wrote 0.37 as a fraction. Many candidates did not realise that had to subtract 0.37 from 1 to find the correct answer.

Generally, this type of question is a good source of marks for many candidates.

Question 10

There was a mix of blank responses and fully correct responses for this question. For those who attempted the question, a fully correct graph was often seen. Although it was disappointing to see a number of candidates plot the correct points and then fail to join them with a line. A few candidates made errors such as wrongly plotting one of the points, but these were generally able to gain 2 marks for a correct line through at least three of the correct points. A small minority gained just one mark for a line drawn with a positive gradient going through (0, –5) or for a line in the wrong place, but with the correct gradient. Some candidates did not extend their lines through the full range of values specified, losing one mark as a result.

Question 11

A minority of candidates were able to follow the instruction to write each of the values in the question to one significant figure and then to calculate using these rounded values. Where there was an attempt to do so, the most common errors were to leave 79 unrounded, round 57.9 to 58 and round 1.98 correctly to one significant figure ie. 2. Mostly, candidates simply used their calculators to find the actual value, showing various interim steps to indicate their working.

Question 12

A majority of candidates could use BIDMAS to answer the question. Some candidates worked out 16 + 36 × 64 and then showed 52 × 64 to find 3328 gaining one mark. There were spurious methods shown by some candidates to answer this question that gained 0 marks.

Question 13

It continues to be the case that many candidates mix up the formulae for circumference and area of circles. Candidates worked out the circumference of the circle and then divided by 8 gaining no marks. Candidates who recalled the area formula and substituted correctly gained the first mark and then did not proceed to divide by 8 thus losing the final 2 marks. The ones who divide their area by 8 did not give their answer as 15 but left it as 14.1 or simply gave the answer as 14 thus losing the final mark. Together with the incorrect use of formulae like πr or $2\pi d$ or $r\pi^2$ this meant that only about a minority of candidates could be awarded with the first mark.

Question 14

Many candidates gained one mark by finding the length of the solid lines of the shape or finding the perimeter of the three rectangles. Many candidates did not understand that 3.5 needed to be subtracted from 6 to find the unknown length of 2.5. Many candidates worked out (6 × 4 + 3.5 × 4) or (19 × 3) and then multiplied by 7.60 to find the total cost gained 2 marks out of 4. It was disappointing candidates could not work out the correct perimeter of the compound shape. Some candidates misunderstood the question by working out the total area of the compound shape and gaining no marks at all.

Question 15

A good number dealt with the numbers correctly to give a correct answer of 85. The most common incorrect methods seen were $\frac{119}{100}\times 140$ or $\frac{140}{119}\times 100$. Some students tried to use a build up method of percentages of 140 and then found it difficult to arrive at an accurate answer.

Question 16

Part (a) Many candidates could interpret this part of the question as the intersection part of the Venn diagram giving a correct answer of $\frac{10}{50}$.

Part (b) The more able candidates could interpret the question where they had to find the the probability of an adult not visiting by adding 5 and 7 and then giving a correct answer of $\frac{22}{50}$ A common misconception was to find 15 + 7 + 10 and then write the incorrect answer of $\frac{32}{50}$. Candidates who wrote their answers as ratios were only penalised once.

Question 17

The topic of upper and lower bounds remain poorly understood. This question gave a measurement of 142.8 metres correct to one decimal place and asked for both bounds. Giving the lower bound was slightly better answered than the upper bound, but only a minority of the candidates gained either mark. Some deny themselves the mark for the upper bound by trying to give it as 142.849 recurring, or 142.84999(9...) but omitting the recurring dot or not showing a sufficient number of 9s. Answers of 142.25 for the lower bound and 142.9 for the upper bound featured more often the correct answers.

Question 18

There were several good attempts worthy of full marks. The added complication of the fractions being mixed numbers confused some candidates who did not know where to start. Sometimes the correct improper fractions were seen but then they gave $\frac{9}{4}\times\frac{12}{7}=\frac{27}{7}$ without showing the cancelling or intermediate step of $\frac{108}{28}$; these candidates were awarded 1 method mark. Some candidates tried to find the common denominator but failed to follow this with a correct multiplication. It was essential that candidates showed all steps, rather than what the calculator gave, in order to be awarded full marks.

Question 19

(a) Many candidates wrote down the answer of 0.7 as required. A common incorrect given was 0.3

(b) Many candidates made a correct start on this probability problem by adding the probabilities of blue, green and purple. If they went on, which only a small number did, to subtract this from 1 to find the probability for red and yellow, they gained the first method mark. For the next mark, this value then needed to be divided by 5, as the probability of red was four times that of yellow. However, a majority divided by 2 and were unable to progress correctly beyond this. Others did not divide at all and their working either stopped or became increasingly muddled. Those who did divide by 5 and correctly allocated the two probabilities, were generally able to work to produce the correct answer. Some candidates multiplied 0.06 by 350 giving 21 as an answer and were credited with 3 marks. A few wrote their answer incorrectly as a fraction, $\frac{84}{350}$, and lost the final accuracy mark.

Question 20

(a) and (b) For those who knew the meaning of the union symbol and the complement of B then these parts of the question were quite straightforward. Many candidates do not have a correct understanding of the symbols.

(c) and (d) Some candidates clearly had no idea of what was required here and often left the answer space blank or gave incorrect responses. A significant number did not recognise the notation, particularly the empty set symbol.

Some candidates incorrectly think they should repeat numbers in sets but this was penalised, and it should be noted that a number should just appear once in a set. Indeed some candidates seemed completely unfamiliar with this topic.

Question 21

Parts (a) and (b) were answered well by many candidates. A common error in part (c) was to add 2 and 10 to give an answer of 12. Many candidates did not realise that answer to part (d) was 0

Question 22

Fully correct algebraic solutions were rare and where sometimes attempted with an assumption that the question would involve a perimeter or even angle total equation. To gain the first mark the candidates had to set up an equation $4x + 6 = 30 - x$ to find the value of x. Those who could do this step went on to find the value of x correctly.

Many candidates simply added the two expressions and equated to 180 ie setting up
$4x + 6 = 30 - x = 180$ thus losing all the marks.

Candidates failed to realise that the two lengths on the isosceles triangle are equal.

Question 23

This question was answered poorly by the majority of candidates. Many candidates could not recall that there are 1000 metres in 1 kilometre. Candidates need to recall how to convert seconds to hours. Many responses across this question were left blank.

Question 24

Few candidates recognised the need to use trigonometry, a pleasant proportion followed through correctly to get the answer of 24.7. A few used the correct trigonometrical ratios and also gave the correct answer. Unfortunately, some who could state the correct ratio of tangent, were unable to rearrange correctly and used the method $BD = 17 \times \tan 32$ rather than $17 \div \tan 32$. Some candidates who did work out BD (27.2) correctly proceeded to assume it was the length CD and then used Pythagoras theorem to find BD which did not gain any further marks.

Thus, a handful of candidates were rewarded with all 4 marks. The majority of candidates were not able to gain any marks and again there were a high number of non-responses.

Question 25

(a) Candidates were tested on the use of the power laws $(ab)^n = a^n b^n$ or alternatively the use of $(5k^3n^4)^2 = 5k^3n^4 \times 5k^3n^4$ followed by the application of a simpler rule. Common incorrect answers were to write down $5k^5n^6$ where the power of k and n had been treated incorrectly. It was disappointing to see many candidates could not recall any of these index rules.

(b) It was encouraging to see a fair number of correct responses for factorising a two term expression with common factors. Where full marks were not awarded, others gained one for a correct partial factorisation with at least two factors outside the bracket or having the correct factor outside the bracket. There were also many and varied incorrect attempts. There were also many non-responses.

(c) Many incorrect answers were seen and the main incorrect answer was to write the signs the wrong way round in the brackets e.g. $(x - 6)(x + 7)$ or $(x + 6)(x - 7)$ or $(x + 6)(x + 3)$; one mark was awarded for this. Many candidates found this part difficult and then could not answer the second part of this question. Some candidates tried to factorise again or tried to use the quadratic formula. Candidates should ensure they have the correct factors by multiplying back as a useful check for this type of question. Candidates failed to recognise that the word **hence** meant that they must use their previous answer to solve the equation.

Question 26

An encouraging number of candidates were able to see that they needed to use Pythagoras' theorem as the first stage of their working. Those who knew to subtract rather than add usually gained two marks, for the correct use of the theorem and finding the length of *CD*. The third method mark was awarded for working out the area of the rectangle. The candidates who worked out the area of the rectangle then proceeded to find the correct answer for the pressure.

Not unexpectedly, there were candidates who were unable to make a correct start, combining the given lengths, sometimes incorporating 90 and 180, in a variety of ways. Others made no attempt at this question. It was extremely rare to see a response where trigonometry had been used instead of Pythagoras' theorem to find the length of *CD* but, if applied correctly, this approach obviously gained the appropriate method marks. There were also many and varied incorrect attempts. There were also many non-responses.

Summary

Based on their performance in this paper, candidates should:

- Interpret and solve everyday problems
- learn to derive and simplify algebraic expressions
- learn when and how to apply Pythagoras theorem
- show clear working when answering problem solving questions
- read the question carefully and review their answer to ensure that the question set is the one that has been answered
- make sure that their working is to a sufficient degree of accuracy that does not affect the required accuracy of the answer.
- become more competent with the use of negative integers in calculations

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